

(No Model.)

W. H. SWITZER.  
FURNACE.

No. 420,636.

Patented Feb. 4, 1890.

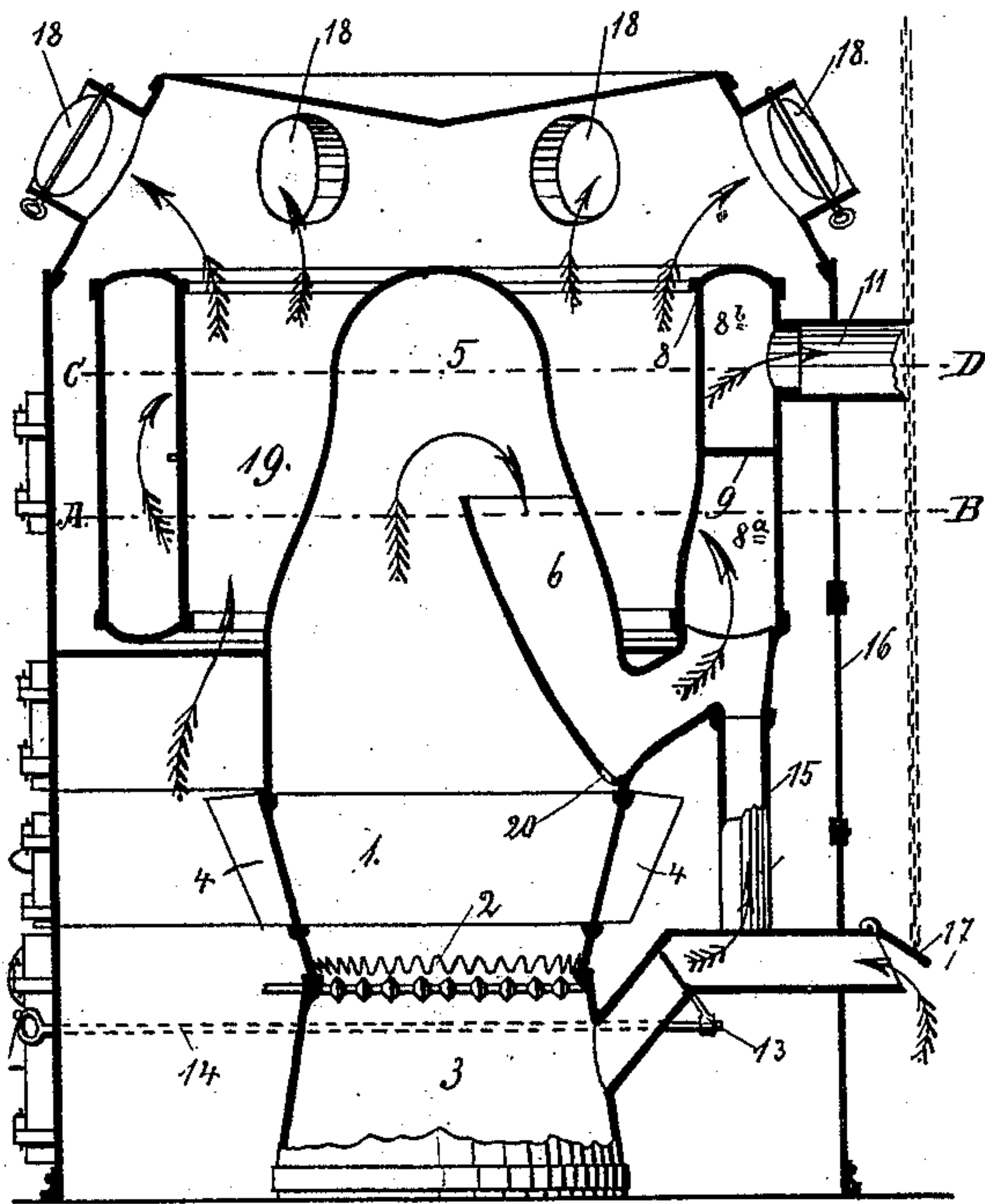


Fig. 1.

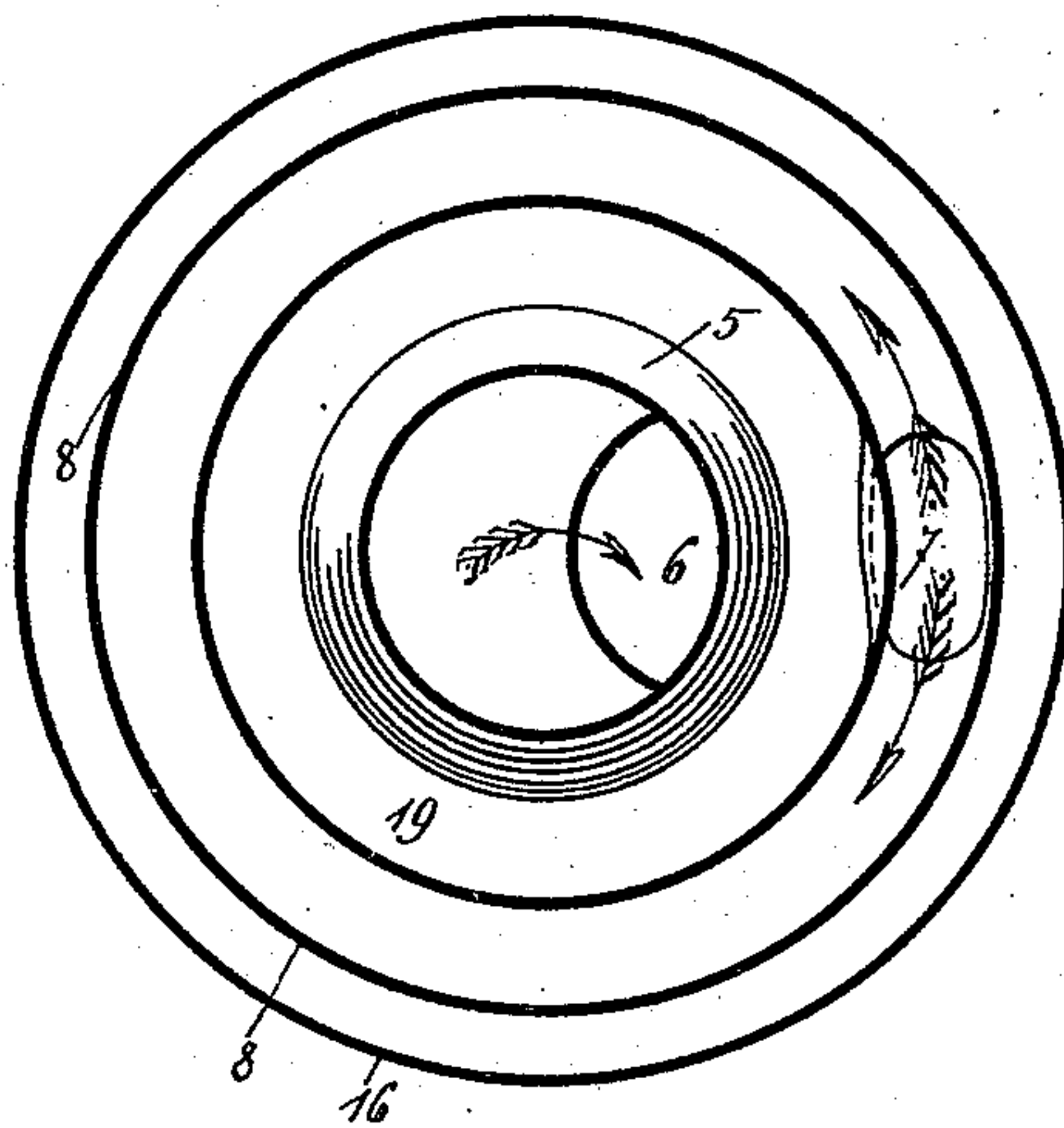


Fig. 2.

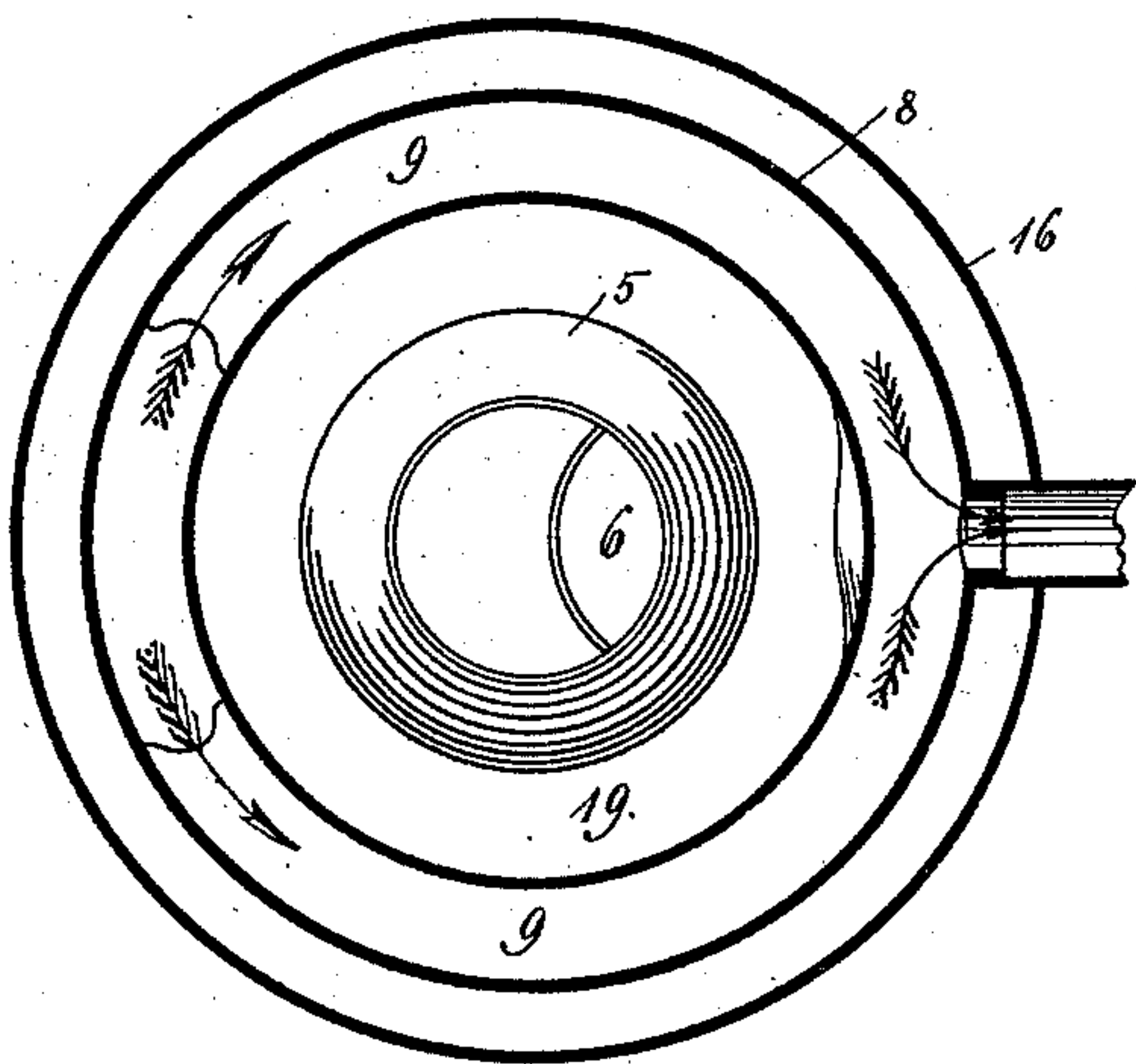


Fig. 3.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. SWITZER, OF UTICA, NEW YORK.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 420,636, dated February 4, 1890.

Application filed May 27, 1889. Serial No. 312,216. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. SWITZER, of the city of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to an improvement in hot-air furnaces; and it consists in particular features of construction, combination, an arrangement hereinafter fully pointed out and claimed.

In the drawings which accompany and form a part of this specification, Figure 1 shows a vertical central section of my furnace. Fig. 2 shows a section of a furnace taken on the line substantially with A B of Fig. 1. Fig. 3 shows a section of a furnace taken on a line substantially with C D of Fig. 1.

Similar figures of reference refer to like parts in the several figures.

Referring to the drawings, 1 indicates the fire-pot; 2, the grate located at the bottom of the fire-pot.

3 is the ash-pit. The fire-pot is provided with projecting flanges 4 cast thereon.

5 is the dome.

6 is the diving-flue inside the dome, which connects through passage-way 7 with the radiator 8, which radiator is provided with a diaphragm 9, which separates the radiator into two compartments connected through passage-way 10 at a point substantially opposite the smoke-exit 11, which connects with the upper compartment 8<sup>7</sup> of the radiator.

12 is the dust-escape flue, connecting with the ash-pit 3, and provided with a damper or valve 13, which is connected with a rod 14 for conveniently operating the same. A flue 15 connects the dust-escape with the passage-

way 7 directly below where it enters the radiator. The dust-escape 12 extends to the outside of the furnace-casing 16, and is provided with a valve 17 for closing the same.

18 are hot-air flues, by which the heated air may be conducted.

19 is an air-passage between the walls of the radiator and the dome of the furnace.

20 is a small opening at the bottom of diving-flue 6, just inside of the fire-pot. The use, operation, and advantages of the construction will be readily understood by one skilled in the art, although it may be well to mention that the opening 20 is provided to allow any accumulation of dust in diving-flue 6 to fall into the fire-pot; that when the fire is shaken down valve 13 is opened, which conveys the dust out of the ash-pit and to the smoke-exit, passing through flue 15; that the furnace may be regulated by valve 17, and as the combustible gases pass away from the fire they are conveyed in one heated volume until after they intermingle with the air admitted through flue 15 and valve 17, which admission of air produces a complete and more perfect combustion of the gases; and this is more especially so when a not too great volume of air is admitted through 17 and 15, and when the volume is increased the action is that of a check-draft.

What I claim as new, and desire to secure by Letters Patent, is—

In a hot-air furnace, the combination of the passage between the radiator and dome, the dust-flue connecting with the ash-pit and extending to the outside of the casing, the flue connecting the dust-escape flue with the passage to the radiator, and the valves in the dust-flue at each side of the entrance to last-mentioned flue.

In witness whereof I have affixed my signature in presence of two witnesses.

WILLIAM H. SWITZER.

Witnesses:

M. E. ROBINSON,  
JOHN H. EYNON.